Checking the Geonor Inlet Heater

The Geonor inlet heater is a thermofoil heating element that is mounted on the gauge inlet tube both above and below the gauge cover. It has a thermistor mounted along with the heater that measures the temperature of the inlet. The 23X datalogger monitors the inlet temperature and sets control port two (C2) either high or low to turn on the relay board that sends 12 volts to the heating elements. Input locations on the 23X can be monitored to determine the operational status of the heater. The control circuit can be forced to turn on the heater by disconnecting the wire from C2 and connecting it to the five volt terminal (5V). Potential sources of failure would include a bad relay board, a problem with power delivery to the heating elements, or a problem with the temperature measurement of the inlet. From the graphs of temperature it appears that the measurement of the inlet temperature is working correctly. The following procedure should isolate the problem and after replacements are made verify correct operation.

1. Disconnect the serial cable to the datalogger to allow keypad access to view the data. It may take 20 seconds or so before the display responds to keypad entries.
2. On the keypad key " *6 51 A" The display should show RGTher, which is the Rain Gauge Thermistor measurement. This reading should be close to the air temperature.
3. While the temperature is displayed, disconnect the wire from the C2 terminal and connect it to the 5V terminal. When this is done the relay board in the bottom of the enclosure that controls the heater power should click on, and the LED on the board should light. If it does not, first check to verify the fuse for the relay board is not blown. If this is not a problem, the relay board is probably bad and should be replaced.
4. If the relay does function properly, the heater should be powered on and the temperature on the display should start to rise. If it does not, the terminal on the relay board marked NO, for Normally Open should be checked with a voltmeter to see if 12 volts is being supplied to the terminal. If it is not, the board is bad and should be replaced.
5. If the board functions have proven to be working, but the temperature of the inlet does not increase, the problem is likely to be in the wiring of the heater on the cover. The cover can be replaced and the operation of the heater verified as directed in steps 3 and 4.
6. If the problem has still not been found, please contact Mark Hall, Brent French, or Michael Black at ATDD for further instructions.
7. When finished it is important to return the control wire to C2, and replace the serial line to the CS I/O port on the datalogger. No data will be lost during this process.

After completing these instructions, please let us know what you found and the Geonor cover can be returned to ATDD with the enclosed shipping label.